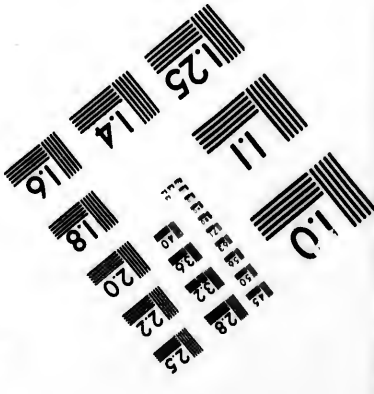
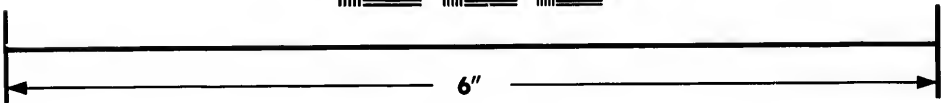
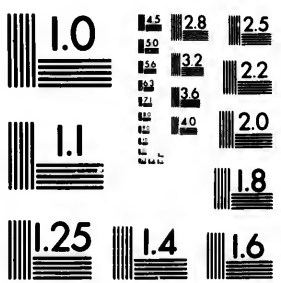


**IMAGE EVALUATION  
TEST TARGET (MT-3)**



**Photographic  
Sciences  
Corporation**

23 WEST MAIN STREET  
WEBSTER, N.Y. 14580  
(716) 872-4503

**CIHM/ICMH  
Microfiche  
Series.**

**CIHM/ICMH  
Collection de  
microfiches.**



**Canadian Institute for Historical Microreproductions / Institut canadien de microreproductions historiques**

**© 1983**

Technical and Bibliographic Notes/Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

- Coloured covers/  
Couverture de couleur
- Covers damaged/  
Couverture endommagée
- Covers restored and/or laminated/  
Couverture restaurée et/ou pelliculée
- Cover title missing/  
Le titre de couverture manque
- Coloured maps/  
Cartes géographiques en couleur
- Coloured ink (i.e. other than blue or black)/  
Encre de couleur (i.e. autre que bleue ou noire)
- Coloured plates and/or illustrations/  
Planches et/ou illustrations en couleur
- Bound with other material/  
Relié avec d'autres documents
- Tight binding may cause shadows or distortion  
along interior margin/  
La reliure serrée peut causer de l'ombre ou de la  
distortion le long de la marge intérieure
- Blank leaves added during restoration may  
appear within the text. Whenever possible, these  
have been omitted from filming/  
Il se peut que certaines pages blanches ajoutées  
lors d'une restauration apparaissent dans le texte,  
mais, lorsque cela était possible, ces pages n'ont  
pas été filmées.
- Additional comments:/  
Commentaires supplémentaires:

- Coloured pages/  
Pages de couleur
- Pages damaged/  
Pages endommagées
- Pages restored and/or laminated/  
Pages restaurées et/ou pelliculées
- Pages discoloured, stained or foxed/  
Pages décolorées, tachetées ou piquées
- Pages detached/  
Pages détachées
- Showthrough/  
Transparence
- Quality of print varies/  
Qualité inégale de l'impression
- Includes supplementary material/  
Comprend du matériel supplémentaire
- Only edition available/  
Seule édition disponible
- Pages wholly or partially obscured by errata  
slips, tissues, etc., have been refilmed to  
ensure the best possible image/  
Les pages totalement ou partiellement  
obscurcies par un feuillet d'errata, une pelure,  
etc., ont été filmées à nouveau de façon à  
obtenir la meilleure image possible.

This item is filmed at the reduction ratio checked below/  
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X	14X	18X	22X	26X	30X
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12X	16X	20X	24X	28X	32X

The copy filmed here has been reproduced thanks to the generosity of:

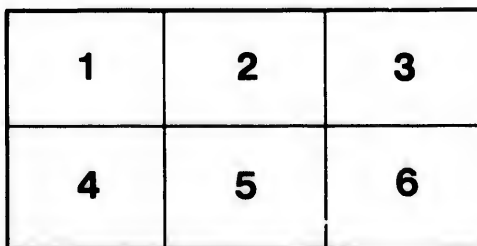
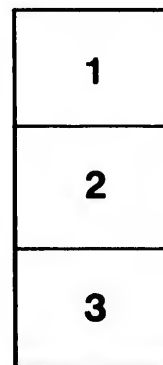
New Brunswick Museum  
Saint John

The images appearing here are the best quality possible considering the condition and legibility of the original copy and in keeping with the filming contract specifications.

Original copies in printed paper covers are filmed beginning with the front cover and ending on the last page with a printed or illustrated impression, or the back cover when appropriate. All other original copies are filmed beginning on the first page with a printed or illustrated impression, and ending on the last page with a printed or illustrated impression.

The last recorded frame on each microfiche shall contain the symbol  $\rightarrow$  (meaning "CONTINUED"), or the symbol  $\nabla$  (meaning "END"), whichever applies.

Maps, plates, charts, etc., may be filmed at different reduction ratios. Those too large to be entirely included in one exposure are filmed beginning in the upper left hand corner, left to right and top to bottom, as many frames as required. The following diagrams illustrate the method:



L'exemplaire filmé fut reproduit grâce à la générosité de:

New Brunswick Museum  
Saint John

Les images suivantes ont été reproduites avec le plus grand soin, compte tenu de la condition et de la netteté de l'exemplaire filmé, et en conformité avec les conditions du contrat de filmage.

Les exemplaires originaux dont la couverture en papier est imprimée sont filmés en commençant par le premier plat et en terminant soit par la dernière page qui comporte une empreinte d'impression ou d'illustration, soit par le second plat, selon le cas. Tous les autres exemplaires originaux sont filmés en commençant par la première page qui comporte une empreinte d'impression ou d'illustration et en terminant par la dernière page qui comporte une telle empreinte.

Un des symboles suivants apparaîtra sur la dernière image de chaque microfiche, selon le cas: le symbole  $\rightarrow$  signifie "A SUIVRE", le symbole  $\nabla$  signifie "FIN".

Les cartes, planches, tableaux, etc., peuvent être filmés à des taux de réduction différents. Lorsque le document est trop grand pour être reproduit en un seul cliché, il est filmé à partir de l'angle supérieur gauche, de gauche à droite, et de haut en bas, en prenant le nombre d'images nécessaire. Les diagrammes suivants illustrent la méthode.

ARTICLE VI.

BATRACHIA OF NEW BRUNSWICK.

By PHILIP COX, PH.D.

Read April 5, 1898.

As the following list records only the writer's personal observations, it must be found to contain fewer species than have hitherto been assigned to the province. He does not believe it includes all our batrachian fauna, though he regards the occurrence here of some forms, included in early publications, as extremely doubtful. It is the result of many years' research in various parts of the province, made as reliable as possible, by means of the views and opinions of distinguished specialists, who were always consulted on doubtful matters.

Among the Urodela, *Desmognathus fuscus*, Rafinesque, and *A. opacum*, Gravenhorst, the latter closely related to *A. punctatum*, a common salamander, are both likely to be found. They have a place on old lists.

Of the Anoura, <sup>X</sup>*Rana septentrionalis*, Baird, and *R. cantabrigensis*, Baird, may likely be found in the western part of the province, or in the lake region near the Bay of Fundy.

AMBLYSTOMIDÆ.

**Amblystoma punctatum**, L. Yellow-spotted Salamander.

Generally distributed, but not abundant.

**A. jeffersonianum**, Green. Granulated Salamander.

Common in river valleys of the southern parts of the province; rare in the northern.

Oromocto Island, Sunbury Co. Roy McLean Vanwart.

**A. jeffersonianum**, var. *laterale*, Hallowell.

Occurring with the last; but more abundant, and characteristic of our fauna.

PLETHODONTIDÆ.

**Plethodon cinereus**, Green. Red-backed Salamander.

Same range as *A. jeffersonianum*, but rather rare. Have not collected it on the North Shore.

x Have since found it in northern New Brunswick, quite common on the "Gaspe" peninsula, Quebec, where I found it replacing *R. fontinalis*

- P. cinereus**, var. *erythronotus*, Green. Red-backed Salamander.  
Specifically related to the last, but with dorsal stripe very red. Common,  
and characteristic of our region.
- P. glutinosus** (*Salamandra glutinosa*). Green Blue-spotted Salamander.  
Very rare, and only in the southern parts of the province.
- Spelerpes bilineatus** (*Salamandra bilineata*). Green.\*  
Small brook at Curry's Mountain, York Co. Roy McLean Vanwart.
- S. bilineatus**, var. *borealis*. Baird.  
The typical form in New Brunswick.  
Valley of the St. John.

## DESMOGNATHIDÆ.

- Desmognathus ochrophæa**, Cope. Painted Salamander.  
Oromocto Island, River St. John, *file* Prof. E. D. Cope. Its first record.  
In gratitude to this distinguished naturalist, whose kind heart and facile  
pen were ever at the service of the humblest plodder, I may be pardoned  
for quoting from a letter, among the last he ever wrote: "The  
specimen of *D. ochrophæa* represents a variety with a spotted belly,  
such as I never saw in the United States."

## PLEURODELIDÆ.

- Diemyctylus viridescens**, Rafinesque. (*Salamandra mill punctata*, Storer).  
Spotted Newt.  
The most aquatic of our Salamanders. In all suitable lakes and ponds.
- D. viridescens**, var. *miniatus*, Hallowell.  
A smaller, red, finless, and less aquatic variety, always found with the  
former. Represents, probably, a mere seasonal phase.

## BUFONIDÆ.

- Bufo lentiginosus americanus**, LeConte. Toad.  
Very common and variable. A more extended and careful examination  
may show the occurrence here of at least two sub-species.

## HYLIDÆ.

- Hyla pickeringii**, Storer. Tree-Frog.  
Found everywhere.
- H. versicolor**, LeConte. Tree-Frog.  
Seems to be rare. Have heard its note in several parts of the province,  
but seen only one specimen, collected in Gloucester County, and now  
in the museum of the Miramichi Nat. Science Association, Chatham, N.B.

## RANIDÆ.

- Rana virescens** (*Rana haleriana*), Kalm. Green Frog.  
Generally distributed over the province.

\* Striped-back Salamander.

- R. virescens brachycephala**, Cope. Green Frog.  
A short-headed and stouter form; the dominant type in New Brunswick.
- R. palustris**, LeConte. Marsh Frog.  
In the southern part of the province; not common. Have not met with it in the four northern counties.
- R. catesbiana**, Shaw. Bull-Frog.  
All over the province, but local. The most aquatic of our frogs.
- R. fontinalis**, LeConte. Spring-Frog.  
Generally distributed; varies greatly. In *fontinalis* I recognize a stout, pustular form, the prevailing type in the northern counties.
- R. fontinalis nigricans**, Agassiz. Spring-Frog.  
A small, black variety, or sub-species met with in rocky brooks.  
Noonan Brook, Sunbury Co.
- R. fontinalis clamitans**, Holbrook. Spring-Frog.  
A long-legged, slender, less webbed and less aquatic variety, which I have collected only in the St. John valley. Mr. C. F. B. Rowe has taken specimens in the vicinity of St. John.
- R. silvatica**, LeConte. Wood-Frog.  
Occurs generally, but not abundant. [Mr. C. F. B. Rowe has noted that this species spawns several weeks earlier than other frogs.—ED].





